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Manual, viz: *Artemisia serrata* Nutt., *Senecio lugens*, Rich., var. *Hookeri* Eaton, *Plantago Rugelii* Decaisne, *Gerardia tenuifolia* Vahl., var. *macrophylla* Benth., *Cuscuta Gronovii* Wild., var. *latifolia* Engelm., *Polygonum Muhlenbergii* Watson, *Aristida purpurea* Nutt.—F. A. Mansfield has compiled a list of plants (137 species and varieties) “discovered in Maine, chiefly since the publication in 1868 of the ‘Portland Catalogue of Maine Plants.’”——N. L. Britton has issued a circular of “Notes” for the guidance of those who have the “Preliminary Catalogue of the Flora of New Jersey.” Attention is directed to many doubtful natives, and difficult species, and also to the common names of plants.—“The Index to the genus *Carex* of Gray’s Manual,” by Jos. F. James, issued as an extra in the *Botanical Gazette*, will prove very useful to all students of that large genus.—The list of New Mexico and Arizona plants collected by H. H. Rusby, contains many interesting species. Sets of these are offered for sale by the collector at Franklin, N. J.——The February numbers of our botanical journals are full of interest. N. L. Britton in the *Torrey Bulletin* describes and figures (three fine colored plates) a new hybrid oak, between *Quercus Phellos* and *Q. nigra*, and which he names *Q. Rudkini*. E. L. Greene describes six new Compositæ, mostly Californian; J. B. Ellis describes sixteen new species of fungi mostly from New Jersey; and G. E. Davenport contributes interesting “Fern Notes,” in which he gives reasons for suspecting *Asplenium ebenoides* to be a hybrid between *Camptosorus rhizophyllus* and *Asplenium ebeneum*.——Dr. Engleman’s “Notes on *Yucca*,” in the *Botanical Gazette* include the description of a new species, *Y. elata*, from the deserts of Arizona. L. M. Underwood brings together in an alphabetically arranged catalogue the genera and species of North American Hepaticæ. It includes forty-nine genera, 219 species and seventeen varieties.—In Jos. F. James’s paper on “The Variability of the Acorns of *Quercus macrocarpa*,” in the Jour. Cinn. Soc. Nat. Hist., the author brings out to a remarkable degree the variable character of the acorn of our common bur-oak. “There are all gradations from no fringe at all on the cup, to one which has a fringe half an inch long. The cups are shallow to deep, thick to thin, extending half way up the acorn, reaching to its apex, or almost entirely concealing it.” Eight figures accompany the paper.

ZOOLOGY.

NOTE ON THE GEOGRAPHICAL DISTRIBUTION OF CERTAIN MOLLUSKS.—The occasion for this note arises from a brief review of Professor A. G. Wetherby’s paper “On the Geographical Distribution of certain Fresh-water Mollusks of North America, and the probable causes of their variation,” in this journal, March, 1882, page 231. The entire paragraph reads, “The Strepoma-

tidæ first appear in New York, and are almost confined to the district occupied by the Unionidæ just mentioned. They do not cross the Mississippi, and are chiefly found in mountain streams." Now, this last statement, "they do not cross the Mississippi," does injustice to what Professor Wetherby really states in the paper reviewed, and does violence to the facts in the case. The statement made by the author reviewed is "This fauna [Fauna C] has a very limited distribution of genera and species west of the Mississippi * * ." (See Am. Jour. of Sciences, March, 1882, page 207.) Mr. Tryon, in his generally excellent monograph of the Strepomatidæ published as No. 253 of the Smithsonian Miscellaneous Collections (1873), made the same statement the writer in the NATURALIST made, but with reference solely to the Trypanostomoid division of that family; he recognizes the occurrence of *Goniobasis* in various streams west of the Mississippi and tributary to it, and also the few forms of doubtful generic relationship from California and Oregon (*Op. Cit.*, pp. xxxviii, xl, xli, xlvii, and xlviii). Of the genus *Goniobasis* there are seven forms from west of the Mississippi exclusive of those found on the Pacific slope. They are *Gon. cubicoides* *Gon. potosiensis*, *Gon. sordida*, *Gon. lirescens*, *Gon. ovoidea*, *Gon. haleiana*, and *Gon. alexandrensis*. I am not aware that *Gon. cubicoides* Anth. has been hitherto reported from any other habitat than Indiana; but the specimens to which reference is here made can be referred only to that species, with any degree of certainty. I obtained them from the Middle Raccoon river, Dallas county, Iowa, and have distributed them among some of my correspondents with labels as above. Of *Trypanostoma*, one species at least occurs west of the Mississippi—the *Try. subulara* Lea—which I desire to place on record here. Several hundred specimens were taken from the Des Moines river, at Fort Dodge, Webster county, Iowa, by the writer, many of which have likewise been distributed. They occur further to the westward, since five species of this family are accredited to Nebraska by Professor Aughey (Sketches of the Physical Geography and Geology of Nebraska, page 144), but specific names are not given; these latter, however, may be found in Bulletin U. S. Geological Survey, Vol. III, No. 3, to which I have not access at this writing. The streams of the western slope of the great basin of the Mississippi have not yet been examined with sufficient care to justify any statement as to their wealth in *Strepomatidæ*, but such evidence as is now accessible points to the conclusions reached by Professor Wetherby.

In the paper by Professor Wetherby (Am. Jour. of Science, March, 1882, p. 208), occurs a most singular error in a matter of fact, which would seem to have an important bearing on the particular theme in connection with which the statement is made. Referring to the somewhat anomalous distribution of *Margaritana margaritifera* Linné, he states that the species is found "in Maine

and Oregon, but not between these stations so far as now known." This statement gives that remarkable species too narrow a limit by many thousands of square miles. In 1843 appeared Vol. v of Part I (Zoölogy of New York), by James E. DeKay, in which, p. 197 (Plate xiv, Fig. 214), is given a description of this shell with the name *Alasmodon arcuata*; De Kay quotes it as "one of the largest and most commonest of our Unios," and states his specimens were from Rockland county, Champlain, Oneida and many other localities. Dr. Lewis (Bull. Buf. Soc. Nat. Sci., August, 1874, page 141) lists it among the shells of New York, as "reported orally, localities not known." I have five examples from a brook at Haydensville, Mass., and over 100 from a branch of the Connecticut river, near Hartland, Vermont, where it abounds. Beyond Maine the species is reported from various points in New Brunswick, and even from Newfoundland. Of its distribution in the western portions of America the following facts are known: "It is the most abundant of the fresh-water bivalves, and the only one I have been able to find in the Chehalis, the streams emptying into Puget sound, and most branches of the Columbia" (Cooper, Pacific R. R. Reports, Vol. XII, Pt. II, page 311). It is also quoted from the Shasta river, Oregon, having been collected in that stream by Dr. Trask, and from the Klamath and Yuba. It is known to the eastward among the Rocky mountains, specimens having been taken from the Missouri river above the Falls; also from the Spokan river, below Lake Cœur d'Alene (Carpenter, Mollusks of west coast of North America, page 116). Concerning the conclusions drawn from this species, I am not prepared at this time to say anything. But to fix as a fact the important deduction that this form and the others mentioned in connection therewith are "remnants" of another fauna which has suffered such remarkable changes as incidental to glaciation is a matter which will yet require a vast amount of labor and research. The exact distribution of this species, since so much is made to depend on it, should be determined. It is believed that in this note all the known points of its occurrence in America have been, for the first time, brought together.—*R. Ellsworth Call.*

THE EUROPEAN HOUSE SPARROW.—*Passer domesticus* has its place in nature, possibly monarchical Europe, and monarchical individuals in other places can overestimate their worth, but in America they are out of place, and their introduction was a grievous mistake. Its disposition is very far from being republican, and its treatment of some of our native birds, which are of much more value than themselves, is tyrannical and despotic. Quarrelsome with and pugnacious towards the swallows, martins, wrens and bluebirds they take by force the houses put up especially for their use. Thanks for the love of liberty, right and justice, the swallow, martin, wren or bluebird having possession of the house can, and usually does succeed in keeping it against

the attack of a single pair of sparrows, but often, this pair, unsuccessful in their house-breaking attempt, go off and solicit the aid of their fellows, and return with a dozen or twenty of their kind, lay siege to the place, and by united effort *take it*, after the rightful occupants have made a desperate defence against enormous odds.

It may be only a coincidence—it is a fact, however, that as the sparrows have increased in numbers, the purple martins, *Progne purpurea*, have decreased in this locality.

The sparrows are essentially grammivorous and frugivorous, and are not insectivorous in the legitimate use of the term. They are very destructive to garden and flower seeds, the small grains, and no species of fruit is free from their depredations. They are more dirty around the house than any of our native, social birds, dropping *en masse* their excrements about the door. I presume they have their good qualities. I cannot agree with Mr. Minot when he says of the purple grackles that he “would not hesitate to sign the death warrant of the whole race,” but I would not hesitate to sign a warrant to banish the house sparrow from the United States to the place from which they came, and furnish a liberal supply of good food and clean water for the voyage.—*Elisha Slade, Somerset, Mass.*

THE OPOSSUM AT ELMIRA, N. Y.—Some five years since Mr. H. C. Hill, of Norristown, Pa., where opossums are plenty, sent a female with eleven young, to Dr. Wilder at Ithaca.

Not altogether liking the Doctor's methods, and perhaps having doubts as to his intentions, they all made their escape and disappeared.

This may perhaps account for the one captured near Elmira, mentioned in the NATURALIST.—*Franklin C. Hill.*

A LARGE OCTOPUS ON THE FLORIDA COAST.—I have in my possession an Octopus, caught in the Halifax river one mile inland from the sea, which weighed when caught two and a half pounds, measured from tip to tip of extended arms diagonally across the head twenty eight inches, longest arm sixteen inches with one hundred and ninety-eight suckers, shortest arm eight inches with eighty-seven suckers, other arms ten, thirteen, thirteen and a half and fifteen inches in length; one arm was broken in its capture.—*Mrs. N. Hasty, New Smyrna, Florida.*

JAPANESE AQUATIC ANIMALS LIVING ON LAND.—Among the conditions favorable to the transition from aquatic to terrestrial life, says Professor C. O. Whitman in his “Zoölogy in the University of Tokio,” is a saturated atmosphere. This condition is found in Japan, and it is here that we find some very interesting cases of true aquatic animals living on land. Every one knows that the medicinal leech is a fresh-water animal. This leech has the habit of crawling partly or wholly out of water, when the air is so saturated with moisture that it can do so without exposing

its skin to dessication. The question naturally arises, could such a creature ever become habituated to living on land? When we remember that the skin of the leech performs the function of lungs, and that, provided it is kept wet, it is capable of drawing its supply of oxygen from moist air, there is no difficulty in understanding how such a change might be induced. Experiment has already shown that some water-breathing animals can without difficulty become air-breathers. The Mexican axolotl is a well known instance, and the *Lymnæidæ* which belong to the deep water fauna of the Lake of Geneva form another. Nature herself supplies us with numerous examples in which such a change is a normal occurrence in the animal's cycle of life. No one has undertaken to test the matter in the case of the leech; but there is every reason to believe that nature has made this experiment, and that the land-leech found on the mountains of this island, and in some other parts of the world, is a living demonstration of her success. In this country the land-leech is found near the tops of mountains, in dense thickets, where the ground is carpeted with moss and other low plants. During the driest months of summer, these localities are kept moist by mists and showers. The structure of the leech has been modified to some extent in accommodation to its present mode of life, but this modification is in every particular one of adaptation. Not an organ has been lost or acquired, certain organs have been compelled to do more work in the land-leech than they do in the common leech, and the natural result has been multiplication and enlargement. The skin-glands have become larger and more numerous, and the urinary vesicles have expanded into bladder-like reservoirs. The liquid secretions of these organs supply any deficiency of water in the air, enabling the leech to keep its dermal respiratory organ constantly moist.

The land planarian forms also are interesting examples of the kind here considered. This worm, which creeps about in damp weather, somewhat like a slug, is abundant in this island, and in many of the islands to the south. It has a wider distribution than the land-leech, being found in nearly all temperate and tropical zones, not only on islands, but also on the continents, where the moisture of island atmosphere prevails.

There is another very remarkable case, allied in some respects to those just mentioned. What could seem more out of place than a fish on land! It would seem that fishes are especially adapted to live exclusively in water. In providing the fish with fins, and with a respiratory organ in the form of gills, nature seems to have decreed that one class of animals should have a place and keep it. But all her devices to keep certain members of the finny tribe within the prescribed medium have failed. Among those remarkable fishes which have succeeded in overcoming every obstacle to living out of water, at least one very interesting species occurs on the coasts of Japan. This is the

jumping-fish (*Periophthalmus modestus* Siebold), or the "Tobi-haze" as the Japanese call it. This fish is more truly amphibious than the frog, for it is able to change the mode of its respiration at pleasure, breathing water and air alternately. It is accustomed to spend a great part of the time out of water, and actually appears to prefer the air to water. If one attempts to capture it, it rarely, if ever, plunges into the water, but skips along the surface. It can climb up the steep sides of rocks or plants, and jumps along the shore in quest of insects and other small animals, with the agility of a frog. When out of water, it puffs up the cheeks with air, which is held for a short time and then renewed.

ZONES OF LIFE IN THE OCEAN.—Mr. A. Agassiz, in the third volume of the report of the scientific results of the voyage of the *Challenger*, recognizes three belts or zones of life from shore to the greatest ocean depths. The following extract is taken from the Harvard University Bulletin No. 21. "The discovery by Count Pourtales, in his first dredgings off the Florida reefs, of ancient forms closely resembling types and genera characteristic of the chalk, first suggested the probability of the theories which looked upon the oceanic basins as of very ancient origin, and of their having retained practically unchanged the limits they now occupy from the time of the later Jurassic period. This ancient facies of many of the deep-sea Echini has also been traced in other groups of the animal kingdom. Professor Alph. Milne Edwards, in some of his preliminary reports on the Crustacea of the *Blake* calls special attention to the resemblance of some of the deep-sea types to the Jurassic and Cretaceous forms.

"In making a comparison of the bathymetrical belts, Mr. Agassiz has found it convenient to recognize three such belts which are mainly dependent for their characteristics on their temperature; pressure, representing great depth, apparently being a very unimportant element in the distribution of the species.

"The first belt, the littoral, extending from low-water mark to a depth of about 100–150 fms., represents what is usually known as the continental line (the 100 fm. line). It is the plateau which is found to represent the extension of the coast line to a depth at which the influence of the direct action of the sun's heat is limited. The next or "continental belt," extends from this continental line to a depth of 450–500 fms., and represents the steep slope which has been subject to greater or less disturbance during the formation of the shore deposits and of the continental plateaus while they were assuming little by little their present outlines; it represents also the bathymetrical belt, in which the diminution of temperature is very rapid, the third belt, the abyssal region, extends from the continental limit to the greatest depths which have thus far been obtained. This region embraces the great oceanic floors where life is somewhat less abundant than along the continental belt, where the detritus carried to its slope supplies abundant food to

the animals living within its limits. It is also a region in which the temperature is very low, where it varies but little from the freezing point, and where the conditions under which the animals now living there have probably remained undisturbed for a considerable period of time, geologically speaking. It is in this abyssal region that we find the greatest number of forms having an ancient facies. In the continental belt they are less numerous, and their resemblance is more with the types of the later geological periods."

STELLER'S MANATEE.—In his "Voyage of the *Vega*," Baron Nordenskjöld has collected all information attainable on Steller's sea-cow (*Rhytina Stelleri*), which on Steller's visit to Bering island in 1741, was found pasturing in large herds on the abundant seaweeds on the shores of the island. Twenty-seven years after, not a specimen was to be found, and it was believed to be then extinct. But Baron Nordenskjöld adduces evidence to prove that a specimen was seen twenty-seven years ago, though there can be little doubt that it has really gone the way of the mammoth. The Baron does not believe that its extinction is due to the destruction by hunters, but that it was a survival from a past age doomed to extinction, which overtook it when driven from its pastures on the shores of Bering island.

Steller's sea-cow (*Rhytina Stelleri* Cuvier) in a way took the place of the cloven-footed animals among the marine mammalia. The sea-cow was of a dark-brown color, sometime varied with white spots or streaks. The thick leathery skin was covered with hair which grew together so as to form an exterior skin, which was full of vermin and resembled the bark of an old oak. The full-grown animal was from twenty-five to thirty-eight English feet in length and weighed about sixty-seven cwt. The head was small in proportion to the large thick body, the neck short, the body diminishing rapidly behind. The short foreleg terminated abruptly without fingers or nails, but was overgrown with a number of short thickly placed brush-hairs; the hind-leg was replaced by a tail-fin resembling a whale's. The animals wanted teeth, but was instead provided with two masticating plates, one in the gum, the other in the under jaw. The udders of the female, which abounded in milk, were placed between the fore-limbs. The flesh and milk resembled those of horned cattle, indeed in Steller's opinion surpassed them. The sea-cows were almost constantly employed in pasturing on the sea-weed which grew luxuriantly on the coast, moving the head and neck while so doing much in the same way as an ox. While they pastured they showed great voracity, and did not allow themselves to be disturbed in the least by the presence of man. One might even touch them without their being frightened or disturbed. They entertained great attachment to each other, and when one was harpooned the others made incredible attempts to rescue it.

ZOOLOGICAL NOTES.—Professor Felix Plateau gives directions for the rapid preparation of large myological preparations, of which we copy his abstract: 1. Maceration in alum during dissection; 2. Wash with pure water; 3. Tint with carmine; 4. Fix the carmine with alum; 5. Maceration in phenicized glycerine; 6. Suppression of the excess of glycerine by compression between absorbent paper. The article is published in full in the Proceedings of the French Association for the Advancement of Science, 1880.—Professor B. G. Wilder has published in the Proceedings of the American Philosophical Society the anatomy of the brain of the cat, accompanied by numerous figures.—Professor Owen lately read a paper before the Linnean Society on the homology of the conariorhinal tract, or the so-called pineal and pituitary glands. He propounds the view that it is the modified homologue of the mouth and gullet of invertebrates; that the subœsophageal ganglia and succeeding nervous cord constitute the centers whence are derived and caudally continued the homologues of the vertebrate myelon.—Mr. W. A. Forbes exhibited at a late meeting of the London Zoölogical Society horns of the pronghorned antelope (*Antilocapra americana*) lately shed by the specimen living in the society's garden. This was, it is believed, the first instance on record of the same individual having shed its horns in captivity in two consecutive years. He also read a paper on the existence of a gall bladder in barbets and toucans. From the peculiar form of the gall bladder in these birds, as well as other features of their myology which he describes, the relationship of these birds to the woodpeckers becomes still more evident than previously stated by Nitzsch, Kessler, Garrod and others.—The last number of the *Memoirs* of the Boston Society of Natural History contains descriptions, with excellent figures on three plates, of new Hydroids from Chesapeake bay, by Professor S. F. Clarke. A new genus (*Calyptospadix cerulca*, n. sp.), is described. The most interesting of the six forms is *Stylactis arge*, "which has the remarkable habit of dividing its hydranths by a transverse partition, leaving the distal half free, which latter, with its two or three hydrorhizal processes that are developed before the division takes place, floats away free, being carried about by currents; finally it settles down, becomes attached; and by growth and budding gives rise to a new colony. It is another method in which the Hydroids are already so rich, by virtue of which they increase their numbers and their geographical distribution."—The Peabody Academy of Sciences has resumed the issue of its *Memoirs*. Vol. 1, No. 5, is devoted to Contributions to the Anatomy of Holothurians, by Mr. J. S. Kingsley; and No. 6 to Mr. J. W. Fewkes' development of the pluteus of *Arbacia*, which differs in certain details from that of *Echinocardis* as worked out by J. Müller.—At a recent meeting of the Linnean Society of London, Professor Cobbold exhib-

ited a large Guinea worm taken from a pony, in Madras. Only one previous instance of the occurrence of this parasite in the horse has been mentioned, and its authenticity has been doubted. —Kossman in *Zoologischer Anzeiger* states that the *Entoniscus*, a parasite Isopod, is an endoparasite; these Isopods are usually external parasites. —C. P. Sluiter in the same journal describes the segmental organs in certain Sipunculidæ from Malaysia. —Farther additions to our knowledge of the fishes of Lower California and the Gulf of California are recorded in the Proceedings of the U. S. National Museum by Messrs. Jordan and Gilbert. —Another paper of value in the same serial is that of Mr. Dall on the genera of Chitons, especially the fossil forms. —An elaborate account of the structure and development of the gar pike by Messrs. Balfour and Parker, read before the Royal Society, is reported in *Nature*. As regards the skull the authors say that its morphology cannot be understood "unless it be seen in the light derived from that of the Elasmobranchs, the sturgeon, and the anurous larva on one hand, and that of *Amia calva* and the Teleostei on the other. —P. Geddes gives in *Nature* an abstract of an important paper on animals containing chlorophyll, such as Spongilla, Hydra, and certain Planarians, while others as Actinia, &c., contain chlorophyll originating from minute algæ which he calls *Philozoön*, which inhabit these animals. The same discovery was recently published by Dr. Brandt, so that both observers independently arrive at nearly the same conclusions, M. Geddes, however, differing in some important particulars.

ENTOMOLOGY.¹

CARNIVOROUS HABITS OF MICROCENTRUS RETINERVIS.—I noted a circumstance on Sunday, October 23, which to me was very interesting. On what is called Mill island, in the Mississippi, two miles above Burlington, there are a number of burr oaks clustered on the extreme point of the island. The trunks were covered with thousands of *Megilla maculata* Deg. A large number of Locustidæ, I think *Microcentrus retinervis* (as near as I can determine them), were apparently feeding upon the beetles. It was so much aside from the habits of the Locustidæ, as I thought them to be strictly herbivorous, that I watched them very closely. They seized the beetles with their front legs, holding them in the same manner as a squirrel its food, and kept biting until the wing covers were broken through, then masticated the abdomen. I took a number of fragments of the beetles as they were cast off, so I could not be deceived.—H. G. Griffith, Burlington, Iowa.

NOTE ON THE FIRST INSECT FROM WRANGELL ISLAND.—Dr. I. C. Rosse, of the *Corwin*, has given me a small spider and a dried

¹ This department is edited by PROF. C. V. RILEY, Washington, D. C., to whom communications, books for notice, &c., should be sent.